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TRANSMITTAL OF APPEAL BRIEF

Docket No.
E0295.70195US00

In re Application of: Stephen J. Todd et al.

Application No.
10/762,044-Conf. #4481

Filing Date
January 21, 2004

Examiner
E. P. Leroux

Group Art Unit
2161

Invention: METHODS AND APPARATUS FOR MODIFYING A RETENTION PERIOD FOR DATA IN A STORAGE SYSTEM

TO THE COMMISSIONER OF PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed: December 2, 2008

The fee for filing this Appeal Brief is \$ 540.00

☒ Large Entity

☐ Small Entity

☐ A petition for extension of time is also enclosed.

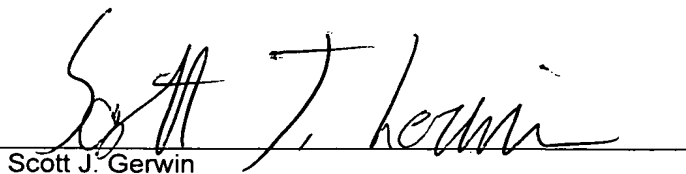
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Dated: February 5, 2009

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<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		Application Number	10/762,044-Conf. #4481
TOTAL AMOUNT OF PAYMENT (\$)		Filing Date	January 21, 2004
540.00		First Named Inventor	Stephen J. Todd
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METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	330	165	540	270	220	110	
Design	220	110	100	50	140	70	
Plant	220	110	330	165	170	85	
Reissue	330	165	540	270	650	325	
Provisional	220	110	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	52	26
Each independent claim over 3 (including Reissues)	220	110
Multiple dependent claims	390	195

Total Claims 80 - 80 or HP 80 **Extra Claims** 0 **Fee (\$)** 0 **Fee Paid (\$)** 0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims 6 - 6 or HP 6 **Extra Claims** 0 **Fee (\$)** 0 **Fee Paid (\$)** 0

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$270 (\$135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

4. OTHER FEE(S)

	Fees Paid (\$)
Non-English Specification, \$130 fee (no small entity discount)	
Other (e.g., late filing surcharge): <u>1402 Filing a brief in support of an appeal</u>	<u>540.00</u>

SUBMITTED BY			
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Dated: February 5, 2009 Signature: Amy F. Trendell (Amy F. Trendell)



ATTORNEY'S DOCKET NO: E0295.70195US00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Stephen J. Todd, et. al.
Serial No: 10/762,044
Confirmation No: 4481
Filed: January 21, 2004
For: METHODS AND APPARATUS FOR MODIFYING A
RETENTION PERIOD FOR DATA IN A STORAGE
SYSTEM

Examiner: Etienne Pierre Leroux
Art Unit: 2161

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

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Amy F. Trendell

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
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APPELLANT'S BRIEF PURSUANT TO 37 C.F.R. §41.37

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Appendix A (37 C.F.R. §41.37(c)(1)(viii)— Claims As Pending

Appendix B (37 C.F.R. §41.37(c)(1)(ix)— Evidence (None)

Appendix C (37 C.F.R. §41.37(c)(1)(x)— Related Proceedings (None)

This brief is in furtherance of the Notice of Appeal mailed on December 2, 2008 and received by the PTO on December 5, 2008. In accordance with 37 C.F.R. §1.8(a), the deadline for submission of this appeal brief under 37 C.F.R. §41.37(a)(1) is February 5, 2009. A check for the fee required under 37 C.F.R. §41.20(b)(2) is submitted herewith.

I. REAL PARTY IN INTEREST (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in this application is the assignee, EMC Corporation, a corporation having a place of business at 176 South Street, Hopkinton, MA.

II. RELATED APPEALS AND INTERFERENCES (37 C.F.R. §41.37(c)(1)(ii))

There are no other appeals or interferences known to the Appellant, the Appellant's legal representative, or the assignee which will directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS (37 C.F.R. §41.37(c)(1)(iii))

There are eighty total claims currently pending in this application (i.e., claims 1-80), of which six are independent, and seventy-four are dependent. Each of claims 1-80 stands rejected and each of these claims is appealed. The appealed claims are set forth in Appendix A. The status of each of the claims is summarized in the list below:

1. Rejected and Appealed: Claims 1-80
2. Allowed: None
3. Withdrawn: None
4. Objected To: None
5. Canceled: None

IV. STATUS OF AMENDMENTS (37 C.F.R. §41.37(c)(1)(iv))

On October 2, 2008, Appellant filed a response to the Final Office Action mailed July 2, 2008. Appellant did not make any amendments to the application in this response, and no amendments have been made to the application subsequent to the mailing of this Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER (37 C.F.R. §41.37(c)(1)(v))

Appellant appreciated that it is often important for a business or institution to prevent records stored on a storage system from being deleted or modified until a certain period of time has elapsed (specification, page 1, lines 15-17). Thus, one embodiment of the invention is directed to the use of a retention period that may be assigned to a unit of data stored on a storage system, and that specifies a period of time during which the storage system will not permit deletion of the unit of data (specification, page 15, lines 1-12). Thus, if a request to delete the unit of data is received before expiration of the retention period, the request is denied and the unit of data is not deleted.

Appellant also appreciated that in some situations, it may be desired to reduce the length of a previously defined retention period before that retention period expires (specification, page 20, lines 26-29). Such situations may arise, for example, when an event occurs that may obviate the need to retain the data for the entire length of a previously defined retention period. For example, the death of a medical patient may obviate the need to retain the patient's medical records (specification, page 20, line 29 - page 21, line 1).

Each of the independent claims on appeal relates to reducing a previously-defined retention period for a unit of data stored on a storage system, where the retention period defines a period during which the unit of data cannot be deleted. One group of the independent claims (i.e., claims 1, 20, and 39) relates to actions taken by the storage system in reducing the retention period of a unit of data stored thereon (e.g., receiving a request from a host to reduce the

retention period for a unit of data and reducing the retention period in response to the request), and another (i.e., claims 58, 65, and 72) relates to actions taken by a host computer in reducing the retention period of a unit of data stored on a storage system (e.g., sending a request to the storage system to reduce the retention period and receiving a response indicating that the request was granted).

Figure 5 of the application (reproduced below) conceptually shows one embodiment of the invention in which the retention period for a unit of data may be reduced. In Figure 5, host 501 sends a request 503 to a storage system 505. The request 503 seeks to reduce a retention period for a unit of data 506 (the particular type of unit of data is referred to as a CDF) stored in the storage system 505 (specification, page 21, lines 11-14). The retention period is reduced in response, which permits the unit of data to be deleted prior to expiration of the longer retention period initially specified (specification, page 22, lines 13-19).

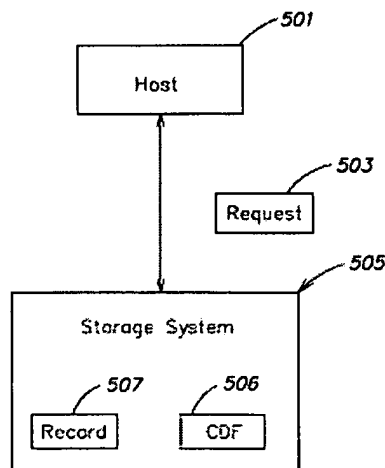


FIG. 5

The foregoing discussion of embodiments of the invention is provided merely to assist the Board in appreciating various aspects of the present invention. However, not all of the description provided above necessarily applies to each of the independent claims pending in the application. Therefore, the Board is requested to not rely upon the foregoing summary in interpreting any of the claims or in determining whether they patentably distinguish over the

prior art of record, but rather is requested to rely only upon the language of the claims themselves and the arguments specifically related thereto provided below.

A summary of each independent claim and each separately argued dependent claim, with citation to the specification, is provided below. The portions of the specification cited below are only examples of places in the specification that provide support for these claims, as other portions of the specification may provide additional support. Moreover, the cited portions of the specification are only examples of some embodiments of the invention, and the claims are not limited to these or any other specific example or embodiment.

In addition, the above discussion of embodiments of the invention is provided merely to assist the Board in appreciating various aspects of the present invention. However, not all of the description provided above necessarily applies to each of the independent claims pending in the application. Therefore, the Board is requested to not rely upon the foregoing summary in interpreting any of the claims or in determining whether they patentably distinguish over the prior art of record.

Independent Claim 1

Claim 1 is directed to a method of processing data in a computer system comprising a host and at least one content addressable storage (CAS) system (specification, page 12, line 1 – page 13, line 5; Figure 1) wherein the host identifies units of data on the CAS system(s) using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data (specification, page 13, lines 18-27). The CAS system(s) store at least one unit of data having a previously-defined retention period (specification, page 15, lines 1-12). The method comprises acts of: (A) receiving, at the at least one CAS system, a request from the at least one host to reduce a length of the retention period for the at least one unit of data, the retention period specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system (specification, page 15, lines 1-12; page 21, lines 11-14; Figure 5); and (B) reducing the length of the retention period in response to the request (specification, page 22, lines 13-19).

Independent Claim 20

Claim 20 is directed to at least one computer readable storage medium encoded with instructions that, when executed on a computer system, perform a method of processing data (specification, page 39, lines 10-14) wherein the computer system comprises a host and at least one content addressable storage (CAS) system (specification, page 12, line 1 – page 13, line 5; Figure 1), wherein the at least one host identifies units of data on the CAS system(s) using content addresses each generated based, at least in part, on at least a portion of the content of the corresponding unit of data (specification, page 13, lines 18-27), the CAS system(s) store at least one unit of data having a previously-defined retention period (specification, page 15, lines 1-12). The method comprises acts of: (A) receiving, at the at least one CAS system, a request from the at least one host to reduce a length of the retention period for the at least one unit of data, the retention period specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system (specification, page 15, lines 1-12; page 21, lines 11-14; Figure 5); and (B) reducing the length of the retention period in response to the request (specification, page 22, lines 13-19).

Independent Claim 39

Claim 39 is directed to a storage system for use in a computer system including the storage system and at least one host, wherein the storage system is a content addressable storage (CAS) system (specification, page 12, line 1 – page 13, line 5; Figure 1), and wherein the at least one host identifies units of data on the at least one CAS system using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data (specification, page 13, lines 18-27). The storage system comprises: at least one storage device to store at least one unit of data that is received from the at least one host and has an associated retention period during which it cannot be deleted (specification, page 15, lines 1-12); and at least one controller that is adapted to: receive a request to reduce a length of the retention

period for the at least one unit of data (specification, page 21, lines 11-14; Figure 5); and reduce the length of the retention period in response to the request (specification, page 22, lines 13-19).

Independent Claim 58

Claim 58 is directed to a method of processing data in a computer system comprising a host and at least one content addressable storage (CAS) system (specification, page 12, line 1 – page 13, line 5; Figure 1), wherein the host identifies units of data on the CAS system(s) using content addresses generated based, at least in part, on at least a portion of the content of the unit of data (specification, page 13, lines 18-27). The CAS system(s) store at least one unit of data having a previously-defined retention period (specification, page 15, lines 1-12). The method comprises acts of: (A) sending, from the at least one host, a request to the CAS system(s) to reduce a length of the retention period for the at least one unit of data, wherein the retention period specifies a time during which the at least one unit of data cannot be deleted from the at least one CAS system (specification, page 15, lines 1-12; page 21, lines 11-14; Figure 5); and (B) receiving, from the CAS system(s), a response indicating that the request was granted (specification, page 22, lines 13-19).

Independent Claim 65

Claim 65 is directed to at least one computer readable storage medium encoded with instructions that, when executed on a computer system, perform a method of processing data (specification, page 39, lines 10-14), wherein the computer system comprises a host and at least one content addressable storage (CAS) system (specification, page 12, line 1 – page 13, line 5; Figure 1), wherein the host identifies units of data on the CAS system(s) using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data (specification, page 13, lines 18-27). The CAS system(s) store at least one unit of data having a previously-defined retention period (specification, page 15, lines 1-12). The method comprises acts of: (A) sending, from the at least one host, a request to the CAS system(s) to reduce a length of the retention period for the at least one unit of data, the retention period

specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system (specification, page 15, lines 1-12; page 21, lines 11-14; Figure 5); and (B) receiving a response indicating that the request was granted (specification, page 22, lines 13-19).

Independent Claim 72

Claim 72 is directed to a host computer for use in a computer system that includes the host computer and at least one CAS system (specification, page 12, line 1 – page 13, line 5; Figure 1), wherein the host identifies units of data on the CAS system(s) using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data (specification, page 13, lines 18-27). The CAS system(s) store, for the host, at least one unit of data having a previously-defined retention period (specification, page 15, lines 1-12). The host computer comprises: at least one storage device; and at least one controller, coupled to the at least one storage device, that is adapted to send a request to the CAS system(s) to reduce a length of the retention period for the at least one unit of data, where the retention period specifies a time during which the at least one unit of data cannot be deleted from the at least one CAS system (specification, page 15, lines 1-12; page 21, lines 11-14; Figure 5) and receive, from the CAS system(s), a response indicating that the request was granted (specification, page 22, lines 13-19).

Dependent Claims

Claim 2

Claim 2 is directed to the method of claim 1, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 3

Claim 3 is directed to the method of claim 2, wherein the event command does not specify the amount by which the retention period is to be reduced (specification, page 35, lines

21-25), and wherein the act of reducing the length of the retention period for the at least one unit of data in response to the request further comprises an act of determining the amount by which the retention period is to be reduced by referring to information stored within or accessible to the storage system (specification, page 35, lines 22-28).

Claim 4

Claim 4 is directed to the method of claim 1, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 5

Claim 5 is directed to the method of claim 1, wherein the at least one storage system stores a previously-defined retention period within the unit of data, and wherein the act of reducing the length of the retention period further comprises replacing the unit of data with a new unit of data having the reduced retention period (specification, page 33, lines 5-8).

Claim 6

Claim 6 is directed to the method of claim 1, wherein the at least one storage system stores the previously-defined retention period in a record outside of the unit of data, and wherein the act of reducing the length of the retention period further comprises modifying the record to reduce the previously-defined retention period (specification, page 22, lines 13-18).

Claim 7

Claim 7 is directed to the method of claim 1, wherein the at least one storage system is a content addressable storage system that is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of the data (specification, page 12, lines 31-32, page 13, lines 1-6).

Claim 8

Claim 8 is directed to the method of claim 7, wherein the content address of the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data (specification, page 26, lines 1-12).

Claim 9

Claim 9 is directed to the method of claim 8, wherein the at least one storage system stores the previously-defined retention period in the second portion of the content unit of data on which generation of the content address is not based (specification, page 25, lines 30-32; page 26, line 1), and wherein the act of reducing the length of the retention period for the at least one unit of data further comprises an act of reducing the previously-defined retention period specified in the second portion of the content of the unit of data (specification, page 25, lines 30-32; page 26, line 1).

Claim 10

Claim 10 is directed to the method of claim 1, wherein the act of reducing the length of the retention period for the at least one unit of data further comprises acts of determining whether the previously-defined retention period for the unit of data is permitted to be reduced (specification, page 24, lines 9-11), and reducing the length of the previously-defined retention period only when the previously-defined retention period for the unit of data is permitted to be reduced (specification, page 24, lines 16-18).

Claim 11

Claim 11 is directed to the method of claim 10, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within a class designated as capable of having the retention period reduced (specification, page 24, lines 15-22).

Claim 12

Claim 12 is directed to the method of claim 11, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining the previously-defined retention period (specification, page 32, lines 3-6).

Claim 13

Claim 13 is directed to the method of claim 11, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data (specification, page 25, lines 8-14).

Claim 18

Claim 18 is directed to the method of claim 1, further comprising an act of maintaining on the storage system at least one record for the unit of data (specification, page 26, lines 14-16), the at least one record storing a history of the reduction of the previously-defined retention period (specification, page 26, lines 13-16).

Claim 19

Claim 19 is directed to the method of claim 18, further comprising acts of receiving, at the at least one storage system, a request from the at least one host to restore the retention period to the length of the previously-defined retention period for the at least one unit of data (specification, page 33, lines 26-30), and restoring the retention period to the length of the previously-defined retention period in response to the request (specification, page 33, lines 23-25).

Claim 21

Claim 21 is directed to the at least one computer readable storage medium of claim 20, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 22

Claim 22 is directed to the at least one computer readable storage medium of claim 21, wherein the event command does not specify the amount by which the retention period is to be reduced (specification, page 35, lines 21-25), and wherein the act of reducing the length of the retention period for the at least one unit of data in response to the request further comprises an act of determining the amount by which the retention period is to be reduced by referring to information stored within or accessible to the storage system (specification, page 35, lines 22-28).

Claim 23

Claim 23 is directed to the at least one computer readable storage medium of claim 20, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 24

Claim 24 is directed to the at least one computer readable storage medium of claim 20, wherein the at least one storage system stores a previously-defined retention period within the unit of data, and wherein the act of reducing the length of the retention period further comprises replacing the unit of data with a new unit of data having the reduced retention period (specification, page 33, lines 5-8).

Claim 25

Claim 25 is directed to the at least one computer readable storage medium of claim 20, wherein the at least one storage system stores the previously-defined retention period in a record outside of the unit of data, and wherein the act of reducing the length of the retention period further comprises modifying the record to reduce the previously-defined retention period (specification, page 22, lines 13-18).

Claim 26

Claim 26 is directed to the at least one computer readable storage medium of claim 20, wherein the at least one storage system is a content addressable storage system that is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of the data (specification, page 12, lines 31-32, page 13, lines 1-6).

Claim 27

Claim 27 is directed to the at least one computer readable storage medium of claim 26, wherein the content address of the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data (specification, page 26, lines 1-12).

Claim 28

Claim 28 is directed to the at least one computer readable storage medium of claim 27, wherein the at least one storage system stores the previously-defined retention period in the second portion of the content unit of data on which generation of the content address is not based (specification, page 25, lines 30-32; page 26, line 1), and wherein the act of reducing the length of the retention period for the at least one unit of data further comprises an act of reducing the previously-defined retention period specified in the second portion of the content of the unit of data (specification, page 25, lines 30-32; page 26, line 1).

Claim 29

Claim 29 is directed to the at least one computer readable storage medium of claim 20, wherein the act of reducing the length of the retention period for the at least one unit of data further comprises acts of determining whether the previously-defined retention period for the unit of data is permitted to be reduced (specification, page 24, lines 9-11), and reducing the length of the previously-defined retention period only when the previously-defined retention period for the unit of data is permitted to be reduced (specification, page 24, lines 16-18).

Claim 30

Claim 30 is directed to the at least one computer readable storage medium of claim 29, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within a class designated as capable of having the retention period reduced (specification, page 24, lines 15-22).

Claim 31

Claim 31 is directed to the at least one computer readable storage medium of claim 30, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining the previously-defined retention period (specification, page 32, lines 3-6).

Claim 32

Claim 32 is directed to the at least one computer readable storage medium of claim 30, wherein the act of determining whether the previously-defined retention period for the unit of data is permitted to be reduced further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data (specification, page 25, lines 8-14).

Claim 37

Claim 37 is directed to the at least one computer readable storage medium of claim 20, further comprising an act of maintaining on the storage system at least one record for the unit of data (specification, page 26, lines 14-16), the at least one record storing a history of the reduction of the previously-defined retention period (specification, page 26, lines 13-16).

Claim 38

Claim 38 is directed to the at least one computer readable storage medium of claim 37, further comprising acts of receiving, at the at least one storage system, a request from the at least one host to restore the retention period to the length of the previously-defined retention period for the at least one unit of data (specification, page 33, lines 26-30), and restoring the retention period to the length of the previously-defined retention period in response to the request (specification, page 33, lines 23-25).

Claim 40

Claim 40 is directed to the storage system of claim 39, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 41

Claim 41 is directed to the storage system of claim 40, wherein the event command does not specify the amount by which the retention period is to be reduced (specification, page 35, lines 21-25), and wherein the at least one controller is adapted to determine the amount by which the retention period is to be reduced by referring to information stored within or accessible to the storage system (specification, page 35, lines 22-28).

Claim 42

Claim 42 is directed to the storage system of claim 39, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 43

Claim 43 is directed to the storage system of claim 39, wherein the at least one storage system stores a previously-defined retention period within the unit of data, and wherein the at least one controller is adapted to replace the unit of data with a new unit of data having the reduced retention period (specification, page 33, lines 5-8).

Claim 44

Claim 44 is directed to the storage system of claim 39, wherein the at least one storage system stores the previously-defined retention period in a record outside of the unit of data, and wherein the at least one controller is adapted to modify the record to reduce the previously-defined retention period (specification, page 22, lines 13-18).

Claim 45

Claim 45 is directed to the storage system of claim 39, wherein the at least one storage system is a content addressable storage system that is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of the data (specification, page 12, lines 31-32, page 13, lines 1-6).

Claim 46

Claim 46 is directed to the storage system of claim 45, wherein the content address of the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data (specification, page 26, lines 1-12).

Claim 47

Claim 47 is directed to the storage system of claim 46, wherein the at least one storage system stores the previously-defined retention period in the second portion of the content unit of data on which generation of the content address is not based (specification, page 25, lines 30-32; page 26, line 1), and wherein the at least one controller is adapted to reduce the retention period specified in the second portion of the content of the unit of data (specification, page 25, lines 30-32; page 26, line 1).

Claim 48

Claim 48 is directed to the storage system of claim 39, wherein the at least one controller is adapted to determine whether the previously-defined retention period for the unit of data is permitted to be reduced (specification, page 24, lines 9-11), and reduce the retention period only when the retention period for the unit of data is permitted to be reduced (specification, page 24, lines 16-18).

Claim 49

Claim 49 is directed to the storage system of claim 48, wherein the at least one controller is adapted to determine whether at least one of the unit of data and the retention period is within a class designated as capable of having the retention period reduced (specification, page 24, lines 15-22).

Claim 50

Claim 50 is directed to the storage system of claim 49, wherein the at least one controller is adapted to determine whether the at least one of the unit of data and the retention period is within the class designated as capable of having the retention period reduced by examining the retention period (specification, page 32, lines 3-6).

Claim 51

Claim 51 is directed to the storage system of claim 49, wherein the at least one controller is adapted to determine whether the at least one of the unit of data and the retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data (specification, page 25, lines 8-14).

Claim 56

Claim 56 is directed to the storage system of claim 39, wherein the at least one controller is adapted to maintain on the storage system at least one record for the unit of data (specification, page 26, lines 14-16), the at least one record storing a history of the reduction of the previously-defined retention period (specification, page 26, lines 13-16).

Claim 57

Claim 57 is directed to the storage system of claim 56, wherein the at least one controller is adapted to receive, at the at least one storage system, a request from the at least one host to restore the retention period to a previously-defined length for the at least one unit of data

(specification, page 33, lines 26-30), and restore the retention period to the previously-defined retention period length in response to the request (specification, page 33, lines 23-25).

Claim 60

Claim 60 is directed to the method of claim 58, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 62

Claim 62 is directed to the method of claim 58, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 63

Claim 63 is directed to the method of claim 58, wherein the at least one host accesses the unit of data stored on the at least one storage system using a content address generated based on the content of the unit of data (specification, page 12, lines 31-32, page 13, lines 1-6).

Claim 64

Claim 64 is directed to the method of claim 58, further comprising an act of sending, from the at least one host, a second request to the at least one storage system to restore the retention period to the length of the previously-defined retention period for the at least one unit of data (specification, page 33, lines 26-30).

Claim 67

Claim 67 is directed to the at least one computer readable storage medium of claim 65, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 69

Claim 69 is directed to the at least one computer readable storage medium of claim 65, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 70

Claim 70 is directed to the at least one computer readable storage medium of claim 65, wherein the at least one host accesses the unit of data stored on the at least one storage system using a content address generated based on the content of the unit of data (specification, page 12, lines 31-32, page 13, lines 1-6).

Claim 71

Claim 71 is directed to the at least one computer readable storage medium of claim 65, wherein the method further comprises an act of sending, from the at least one host, a second request to the at least one storage system to restore the retention period to the length of the previously-defined retention period for the at least one unit of data (specification, page 33, lines 26-30).

Claim 74

Claim 74 is directed to the host computer of claim 72, wherein the request for the at least one host to reduce a length of the retention period for the at least one data comprises an event command indicating the occurrence of an event (specification, page 35, lines 7-11).

Claim 76

Claim 76 is directed to the host computer of claim 72, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced (specification, page 22, lines 20-29).

Claim 77

Claim 77 is directed to the host computer of claim 72, wherein the host computer is adapted to access the unit of data stored on the at least one storage system using a content address generated based on the content of the unit of data (specification, page 12, lines 31-32, page 13, lines 1-6).

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37
C.F.R. §41.37(c)(1)(vi))**

The grounds of rejection to be reviewed on appeal are:

1. The rejection of claims 1-10, 14, 15, 17, 20-29, 33, 34, 39-48, 58, 60, 62, 63, 65, 67, 69, 70, 72, 74, 76, and 77 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon (U.S. Pub. No. 2004/0249871) in view of Parson (2004/0083347);
2. The rejection of claims 11, 12, 30, 31, 49 and 50 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view Parson, and further in view of Beresnevichiene (U.S. Pub. No. 2005/0076293);

3. The rejection of claims 13, 32, and 51 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson, further in view of Beresnevichiene and further in view of Chang (U.S. Patent No. 6,690,774);
4. The rejection of claims 16-19, 35-38, 56, 57, 64, and 71 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson, further in view of DeKimpe (U.S. Patent No. 6,542,895); and

VII. ARGUMENT (37 C.F.R. §41.37(c)(1)(vii))

A. Summary of The Argument

1. Reducing Retention A Period

Each of the independent claims on appeal relates to reducing a previously-defined retention period for a unit of data stored on a storage system, where the retention period defines a period during which the unit of data cannot be deleted. The prior art of record does not even teach the use of a retention period, let alone reduction of a previously-defined one.

The Examiner relies on the Bazoon reference as purportedly teaching this limitation, asserting that the “storage period” disclosed in the Bazoon reference is a retention period that defines a period during which a unit of data cannot be deleted. However, the storage period disclosed in the Bazoon reference is fundamentally different from the claimed retention period.

As explained in more detail below, the storage period of Bazoon defines a **maximum** period during which a document is permitted to exist in a knowledge repository, such that at the expiration of this period the document is automatically deleted, but does not prevent deletion of a document prior to expiration of the storage period. By contrast, a retention period for a unit of data defines a **minimum** period during which the unit of data **must** exist on the storage system (i.e., the unit of cannot be deleted during the retention period).

The Parson reference does not cure this infirmity of Bazoon, and the Examiner does not allege that Parson relates to the use of retention periods. Rather, Parson is entirely unrelated to the storage and retrieval of content on a storage system, and is relied on by the Examiner as purportedly teaching a content addressable storage (CAS) system.

2. Content Addresses

Each of the independent claims on appeal includes limitations relating to the use of a content address as an identifier for a unit of data on a content addressable storage (CAS) system. Each independent claim recites that each content address is generated based, at least in part, on at least a portion of the content of its corresponding unit of data.

The Examiner relies on Parson as purportedly teaching the use of such content addresses, asserting that the content addressable memory (CAM) disclosed in Parson is a CAS system in which a unit of data is identified using a content address that is generated based, at least in part, on at least a portion of the content of its corresponding unit of data. However, to the extent that the CAM of Parson can even be considered a CAS system, the CAM does not identify a unit of data stored therein using a content address generated based, at least in part, on at least a portion of the unit of data.

Rather, as explained in more detail below, the CAM described in Parson is a look up table. That is, a CAM is a memory that stores a plurality of entries, and is capable of performing of searching the entries in parallel. Thus, for example, one could issue a search request to the CAM to search for "Key A." The CAM would compare the data stored at each in entry with "Key A" in parallel, and identify every entry that stores "Key A."

B. Discussion of Bazoon (U.S. Pub. No. 2004/0249871)

Bazoon is directed to a system and method for automatically removing documents from a knowledge repository (Abstract). Bazoon discloses that knowledge repositories have been used extensively, and that the size of their document databases has grown as more documents have been added (§0004). The growth of these databases presents problems in that it is more difficult

to locate relevant documents, and the increased amount of data may slow down processing in the overall system (§§0004-§§0005). Bazoon discloses that though it is important to remove outdated documents to address these problems, system administrators do not have a significant amount of time to devote to such removal (§§0006).

The system of Bazoon addresses this problem by providing for the automatic removal of documents from a knowledge repository (§§0011). Bazoon discloses that a storage period may be assigned to documents in a knowledge repository. In the system of Bazoon, a storage period is defined as a value or value range which tracks the amount of time remaining for the document to stay in a database (§§20). That is, a storage period defines a maximum period of time that a document is allowed to exist in the knowledge repository (§§20). Thus, when the storage period of a document has expired, the document is automatically removed from the knowledge repository (§§24).

C. Discussion of Parson (U.S. Pub. No. 2004/0083347)

The system of Parson addresses the problem of associating incoming data with previously-received data. For example, when a network processor receives an incoming packet, the incoming packet may have a relationship with one or more packets that have previously been received by the network processor (§§0002). The network processor attempts to match the current packet with information from previously-received packets. Because packets are being received at the network processor at a high rate, this matching must generally be performed within tight time constraints (§§0002).

Parson discloses that one prior art technique for performing this matching is through use of a content addressable memory (CAM). The CAM is a hardware memory device that stores a plurality of entries, each of which has a comparator. When the CAM receives a search request, it searches all of its entries to determine whether any of them store the information identified in the search request. For example, if the CAM were to receive a search request for "Key A," it would search all of its entries to determine if any of them store "Key A," and identify the entries that do

(¶0003). Because each entry has its own comparator, all entries may be searched in parallel, making searchable very quickly (¶0003; ¶0004).

Parson discloses that using a CAM is disadvantageous because it requires a large amount of memory and a large number of comparators, making it very expensive (¶0004; ¶0081).

Thus, Parson discloses a system that uses hash tables implemented in cheaper memory to compare incoming data to previously-received data, and therefore avoids the expense associated with a CAM (¶¶0006-0009).

D. The Rejection Of The Independent Claims Relating To Reducing A Retention Period (i.e., Claims 1, 20, 39, 58, 65, 72)

The Office Action rejects each of the independent claims under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon (U.S. Pub. No. 2004/0249871) in view of Parson (U.S. Pub. No. 2004/0083347). Appellant respectfully disagrees with this rejection as: (1) one of skill in the art would not have modified Bazoon in the manner asserted by the Examiner; and (2) even if one of skill in the art were to have modified Bazoon in this manner, each of the independent claims patentably distinguishes over the system resulting from this combination. Each of these points is discussed below in greater detail.

1. One Of Skill In The Art Would Not Have Modified Bazoon In The Manner Asserted By The Examiner

Although the Examiner is not specific about what he believes the system resulting from the combination of Bazoon and Parson would like, the Examiner appears to assert that one of skill in the art would have modified Bazoon to somehow include the CAM disclosed by Parson (*see* Final Office Action of July 2, 2008, page 2).

Appellant respectfully disagrees that one of skill in the art would have modified Bazoon to include the CAM of Parson. First, Parson expressly teaches away from using a CAM because it is too expensive. Indeed, the entire disclosure of Parson is directed to techniques using a hash table to compare incoming data with previously-received data **instead of using a CAM**, because

a CAM is too expensive and because removing expired entries from a CAM is more difficult (*see* Parson, ¶0004 and ¶0081).

Thus, a person following the teachings of Parson would not have modified Bazoon to include a CAM. Rather, to the extent that one of skill in the art would have modified Bazoon in any way, based on the teachings of Parson, a person of skill in the art would have modified Bazoon to use the hash table techniques that are taught by Parson as being superior to a CAM.

Moreover, the Examiner does not provide any reasonable rationale as to why a person of skill in the art would have modified Bazoon to include the CAM of Parson, as the reasons provided by the Examiner make little sense. First, the Examiner contends that a person of skill in the art would have incorporated the CAM to provide “a memory type that allows key-oriented information to be stored and quickly retrieved (Final Office Action, page 2).” However, the Examiner does not provide any reason as to why one of skill in the art would have incorporated a memory that allows key-oriented information to be stored and quickly retrieved into the system of Bazoon, as Bazoon is related to managing the storage of documents and does not mention storing or retrieving key-oriented information.

The Examiner further states that one of skill in the art would have combined the disclosures of Bazoon and Parson because both references are directed to minimizing the size of document repositories by deleting data, “such that (1) search results do not include irrelevant and distracting source documents; and (2) cost is minimized because CAM is expensive (Final Office Action, page 2).” Thus, the Examiner appears to assert that one of skill in the art would have incorporated the CAM of Parson into the system of Bazoon to minimize cost. However, this makes little sense, as the system disclosed by Parson is directed to avoiding using a CAM because a CAM is too expensive. Indeed, Parson teaches that a CAM should not be used because the cost of the CAM is too high.

For the reasons discussed above, one of skill in the art would not have modified Bazoon in the manner that the Examiner asserts. As such, the rejections of each of the independent claims is improper, and it is respectfully requested that these rejections be reversed for at least this reason.

2. Even If The System Of Bazoon Were Modified In The Manner Asserted, The Claims Patentably Distinguish Over The System Resulting From This Modification

As discussed above, the Examiner asserts that one of skill in the art would have modified the system of Bazoon to incorporate the CAM of Parson. Even if one of skill in the art were to have modified Bazoon in this way (which Appellant does not concede), each independent claim patentably distinguishes over the system resulting from this modification, as the asserted combination does not have: (a) a retention period that defines a period during which the unit of data cannot be deleted from the storage system; and (b) a content address for a unit of data that is generated based, at least in part, on at least a portion of the content of the corresponding unit of data.

a. Reducing Retention A Period

Each independent claim relates to reducing a retention period for a unit of data stored on a storage system, wherein the retention period defines a period during which the unit of data cannot be deleted from the storage system. The Office Action asserts that ¶0022 of Bazoon discloses establishing a retention period for a unit of data, and that the length of the retention period can be reduced (*see* Final Office Action, page 2). Appellant disagrees.

The cited portion of Bazoon discloses that the **storage period** of a document may be reduced in response to a determination that the document is not useful. However, Bazoon does not disclose that the storage period defines a period during which a unit of data (e.g., a document) cannot be deleted, as required by the independent claims. Indeed, the storage period of Bazoon is very different from the claimed retention period.

In the system of Bazoon, a storage period for a document defines a maximum period during which the document is permitted to be stored in the knowledge repository. That is, Bazoon states, “[t]he storage period is generally defined as a value or value range which tracks the amount of time remaining for the document to stay in a database. For example, the storage

period may contain a value that represents the document's remaining number of months, days, or hours in the knowledge repository or database. Alternatively, the storage period can be a date and/or time range during which the document is allowed to exist in the knowledge repository.” (Bazoon, ¶0020). Thus, Bazoon makes clear that the storage period defines the maximum amount of time a document is permitted to exist before it is automatically deleted from the knowledge repository. Indeed, Bazoon discloses that when the storage period for a document expires, it is automatically removed from the knowledge repository (Bazoon, ¶0024).

By contrast, the retention period for the at least one unit of data recited in the independent claims is a period “during which the at least one unit of data cannot be deleted.” A retention period during which a unit of data cannot be deleted is very different from a storage period during which a document is permitted to exist. Unlike the *maximum* allowable storage period after which a document is automatically deleted disclosed in Bazoon, the claimed retention period specifies a *minimum* time period where the unit of data is required to exist.

A simple example makes the differences between the system of Bazoon and embodiments of the present invention clear. Assume a user issues a request to delete a unit of data before the retention period has expired. In Bazoon, the content would be deleted, as nowhere does Bazoon disclose that a document cannot be voluntarily deleted prior to expiration of its storage period. By contrast, in a system in accordance with one embodiment of the present invention, the deletion request would be denied and the content retained, as the specified retention period defines a period during which content cannot be deleted.

Bazoon simply does not disclose or suggest that a storage period for a document is a period during which the unit of data cannot be deleted. Consequently, Bazoon does not disclose at least one unit of data having a retention period during which the at least one unit of data cannot be deleted from the at least one CAS system, as recited in each of the independent claims, and therefore necessarily does not disclose sending or receiving a request to reduce the length of the retention period and/or reducing the length of the retention period in response to such a request.

During a telephone interview on January 9, 2006, the Examiner acknowledged that Bazoon does not explicitly state that a storage period for a document is a period of time during which the document cannot be deleted. However, he indicated that the use of the term “storage period” necessarily defines a period during which a document cannot be deleted. The Examiner’s position is unsupported by any such suggestion in the reference, and is belied by the fact that the reference describes a storage period explicitly as defining something different, i.e., a maximum time period after which a document must be deleted.

Although not stated as such, the Examiner’s position essentially is that the term “storage period” inherently defines a period during which a document cannot be deleted. The rejection is clearly improper on those grounds, as the standard for making an inherency rejection is undoubtedly not met.

As MPEP §2112 makes clear, the bar is extremely high for establishing an inherency rejection. That is, “[t]o establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” MPEP §2112(IV), page 2100-47 of Original Eighth Edition, Rev. 5, Aug. 2006.

There is simply nothing in Bazoon which suggests that a storage period must necessarily define a period during which a document cannot be deleted. Even more strikingly, Bazoon specifically defines a storage period otherwise – i.e., as a period after which a document must be deleted.

In view of the foregoing, it should be appreciated that Bazoon does not disclose the use of a retention period during which a unit of data cannot be deleted from a storage system, and therefore necessarily does not disclose sending a request to reduce such a retention period or reducing such a retention period in response to such a request. Parson does not cure this infirmity of Bazoon, and the Examiner does not appear to rely on Parson as teaching this limitation, as

Parson does is related to matching incoming data with previously-received data using hash tables, and does not relate to the use of retention periods.

As each of independent claims 1, 20 and 39 recites receiving a request to reduce the length of such a retention period and the reducing of the length of the retention period in response to the request, the rejection of each of those claims is improper and should be reversed. Similarly, as each of independent claims 58, 65 and 72 recites sending a request to reduce the length of such a retention period and receiving a response indicating that the request was granted, the rejection of those claims also is improper and should be reversed.

b. Content Addressees

Each independent claim relates to the use of a content addressable storage (CAS) system on which a unit of data stored thereon is identified using a content address that is generated based, at least in part, on at least a portion of the unit of data. The Office Action concedes that Bazoon fails to disclose any such CAS system, but appears to assert that Parson discloses such a CAS system in ¶0081 (*See* Office Action, page 2). Appellant disagrees.

At ¶0081, Parson discloses a timeout enhancement for the hash tables described therein, whereby each entry has an associated expiration time with it and each time an entry is accessed (e.g., by a Put or Get operation), the expiration time for that entry is updated. This allows entries in the hash table that have not been accessed to expire and be treated as having been deleted from the hash tables, while entries that are frequently accessed remain in the hash tables. When a table is reorganized, the deleted entries are not copied.

Parson discloses that this technique provides an advantage over a Content Addressable Memory (CAM), in that in a CAM, explicit searches for expired entries must be performed, and explicit instructions must be issued to remove expired entries from the CAM.

Thus, while ¶0081 of Parson mentions a CAM, the system of Parson does not use a CAM. Rather, Parson discusses a CAM at ¶0081 to explain how the timeout enhancement for the hash tables described therein provides advantages over a CAM and suggests that these hash tables should be used instead of a CAM.

The Examiner appears to assert that the CAM mentioned in ¶0081 is a content addressable storage (CAS) system on which a content unit stored thereon is identified using a content address that is generated based on the content unit it identifies. Appellant respectfully disagrees.

As discussed above, Parson discloses that the CAM is a hardware memory device that stores a plurality of entries, each of which has a comparator. When the CAM receives a search request, it searches all of its entries to determine whether any of them store the information identified in the search request. For example, if the CAM were to receive a search request for "Key A," it would search all of its entries to determine if any of them store "Key A," and identify the entries that do (¶0003). Nowhere does Parson disclose that a unit of data stored in the CAM is identified by a content address that is generated based, at least in part, on at least a portion of the unit of data.

As each of independent claims 1, 20, 39, 58, 65, and 72 recites that the at least one host identifies units of data on the at least one CAS system using content addresses each generated based, at least in part, on at least a portion of the corresponding unit of data, the rejection of each of those claims is improper and should be reversed.

E. The Dependent Claims

Each of the dependent claims depends from one of the independent claims discussed above and each is patentable for at least the same reasons as its respective independent claim. Although some of the dependent claims are rejected under §103 based on Bazoon in combination with one or more secondary references, none of the secondary references disclose a retention period (and the Office Action does not allege as such). Therefore, these references do not cure the above-discussed deficiencies of Bazoon relating to the independent claims.

Several of the dependent claims further distinguish over the prior art of record for additional reasons and are separately patentable from their independent claims for reasons discussed below. It should be appreciated that the failure to argue the separate patentability of any of the other dependent claims is not a concession that those claims are not separately

patentable for any context other than this appeal, including when considered with respect to other prior art not of record.

1. Claims Relating To An Event Command (i.e., Claims 2, 21, 40, 60, 67, and 74)

The Office Action rejects claims 2, 21, 40, 60, 67, and 74 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of these claims relates to the request from the host computer to the storage system to reduce the length of the retention period comprising an event command indicating the occurrence of an event.

The Office Action asserts that Bazoon discloses this limitation at ¶0023, by virtue of the fact that a date range can be shortened or lengthened. *See* Final Office Action, pages 3-4. Appellant respectfully disagrees.

The cited paragraph of Bazoon does not disclose or suggest that a request from a host computer to a storage system to reduce the length of a retention period comprises an event command indicating the occurrence of an event. Rather, this paragraph discloses only that the storage period of a document may be reduced in response to a determination that the document is not useful.

The determination that a document is not useful is not an event command indicating the occurrence of an event. Moreover, even if this determination is construed to be an event, it is not part of a request from a host computer to a storage system, as recited in each of claims 2, 21, 40, 60, 67, and 74. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

2. Claims Relating To Reducing The Retention Period By Referring To
Information Within Or Accessible To The Storage System (i.e., Claims 3, 22,
and 41)

The Office Action rejects claims 3, 22, and 41 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of claims 3, 22, and 41 requires that the act of reducing the length of the retention period of a unit of data further comprise an act of determining the amount by which the retention period is to be reduced by referring to information stored within or accessible to the CAS system. For example, as described in Applicants' specification at page 22, lines 20-29, the storage system may have previously-stored information specifying the length of a new retention period and may refer to this information to reduce the retention period.

The Office Action asserts that Bazoon discloses this limitation at ¶0039. *See* Final Office Action, page 4. Appellant respectfully disagrees. At ¶0039, Bazoon discloses that when a document is about to expire (i.e., about to reach the end of its storage period), an author of the document may be notified that the document will be removed from the knowledge repository within a particular amount of time, and may be asked whether he or she wants the document to be retained in the knowledge repository. If the author wants to retain the document, he or she can assign a new storage period to the document, or a new storage period of a default duration can be assigned to the document.

Thus, this paragraph of Bazoon does not even relate to reducing the length of a storage period. Rather, it relates to **extending** the length of a storage period that is about to end.

Nowhere does Bazoon disclose or suggest that the manner in which the length of the retention period is reduced is determined by referring to information stored within or accessible to the storage system. Accordingly, claims 3, 22 and 41 further distinguish over the prior art for this additional reason and their rejection should be reversed.

3. Claims Relating To Specifying The Manner of Retention Period Reduction In The Request (i.e., Claims 4, 23, 42, 62, 69, and 76)

The Office Action rejects claims 4, 23, 42, 62, 69, and 76 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson. Appellant disagrees with this rejection.

Each of claims 4, 23, 42, 62, 69, and 76 requires that the request from the host to the at least one storage system to reduce the length of a retention period specify not only that the retention period be reduced, but also specify the amount by which the length of the retention period is to be reduced. For example, as described in Applicants' specification at page 22, lines 20-29, the request sent from the host computer to the storage system to reduce the retention period may specify the length of the new retention period. This is an alternative embodiment to that recited in claims 3, 22 and 41, wherein the reduced retention period is determined by referring to stored information.

The Office Action asserts that Bazoon discloses this limitation at ¶0039. *See* Office Action, page 4. However, as discussed above, ¶0039 of Bazoon relates to extending an expiring storage period, not reducing a previously-established retention period. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

4. Claims Relating To Reducing A Retention Period By Replacing The Unit of Data (i.e., Claims 5, 24, and 43)

The Office Action rejects claims 5, 24, and 43 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of claims 5, 24, and 43 relates to reducing the retention period for a unit of data by replacing the unit of data with a new unit of data having the reduced retention period.

The Office Action asserts that Bazoon discloses this limitation at ¶0023, asserting that this paragraph discloses shortening data ranges. *See* Office Action, page 4. Appellant disagrees that the cited portion (or any other portion of Bazoon) discloses or suggests this limitation.

As discussed above, ¶0023 of Bazoon discloses that the storage period for a document may be reduced in response to a determination that the document is not useful. Thus, Bazoon teaches that the maximum retention period for a document that is not useful can be shortened. Neither this paragraph, nor any other portion of Bazoon discloses or suggests that the storage period is reduced by somehow replacing the unit of data with a new unit of data having the reduced storage period. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

5. Claims Relating To Reducing A Retention Period By Modifying The Retention
Period Record (i.e., Claims 6, 25, and 44)

The Office Action rejects claims 6, 25, and 44 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of claims 6, 25, and 44 relates to the retention period for a unit of data being stored in a record outside of the unit of data and reducing the retention period for the unit of data by modifying the record to reduce the previously-defined retention period.

The Office Action asserts that Bazoon discloses this limitation at ¶0039, by virtue of the system to have the ability to assign a default storage period if one is not specified by the user. *See* Final Office Action, pages 4-5. Appellant disagrees that the cited portion (or any other portion of Bazoon) discloses or suggests this limitation.

As discussed above, ¶0039 of Bazoon discloses that when a document is about to expire (i.e., about to reach the end of its storage period), an author of the document may be notified that the document will be removed from the knowledge repository within a particular amount of time, and may be asked whether he or she wants the document to be retained in the knowledge repository. If the author wants to retain the document, he or she can assign a new storage period to the document, or a new storage period of a default duration can be assigned to the document.

Neither this paragraph, nor any other portion of Bazoon, discloses or suggests where or how the storage period for a unit of data is stored or how the storage period for a document is reduced, and certainly does not disclose or suggest that the storage period is stored in a record

outside of the unit of data and is reduced by modifying the record. Accordingly, these claims further distinguish over the prior art of record for this additional reason and their rejection should be reversed.

6. Claims Relating To Content Addresses (i.e., Claims 7, 26, 45, 63, 70, and 77)

The Office Action rejects claims 7, 26, 45, 63, 70, and 77 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of these claims relates to the access request from the host to the storage system referencing a content address for the unit of data that is generated based on the content of the unit of data.

The Office Action does cite any reference as purportedly teaching this limitation, but rather takes Official Notice that, “wherein the at least one storage system is a content addressable storage system that is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit data,” is well known and expected in the art.” *See* Office Action, page 5.

In support of this taking of Official Notice, the Examiner points to an entry from the Microsoft Computer Dictionary, but does not officially cite this reference, and does not provide any explanation as to what version of the Microsoft Computer Dictionary is being cited or when this version was published. Moreover, the Office Action is entirely devoid of any explanation as to why one of skill in the art purportedly would have modified the system resulting from the combination of Bazoon and Parson based on the teachings of the Microsoft Computer Dictionary, or what modifications one of skill in the art purportedly would have made.

Appellant disagrees that this taking of Official Notice is proper. To the extent that the Examiner wishes to rely on the Microsoft Computer Dictionary as teaching the limitations of 7, 26, 45, 63, 70, and 77, the reference should first be properly cited and established as prior art. Then, the Examiner should explain what modifications to the system resulting from the combination of Bazoon and Parson he believes one of skill in the art purportedly would have made, and why one of skill in the art purportedly would have made these modifications.

Ignoring the requirements for establishing obviousness under §103 by taking Official Notice is improper. As such, the rejection of claims 7, 26, 45, 63, 70, and 77 should be reversed.

7. Claims Related To Generating A Content Address Based Upon Only A Portion
Of The Content (i.e., Claims 8, 27, and 46)

The Office Action rejects claims 8, 27, and 46 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon and Parson.

Claims 8, 27, and 46 each is directed to the content address of the unit of data being generated based only on a first portion of the content of the unit of data and not on a second portion of the content of the unit of data. As discussed in Appellant's specification at page 25, line 30 – page 26, line 12, generating the content address from only a first portion of the content of the unit of data may be advantageous in that the second portion of the unit of data may be modified without altering the content address of the unit of data. That is, because a content address for a unit of data is generated based (at least in part) on the content of the unit of data, changing the content of the unit of data may change its content address. By generating a content address using only a first portion of the content of the unit of data and not a second portion, the second portion of the content may be modified without impacting the content address, so that the content can continue to be accessed via the same content address.

The basis for the rejection of these claims is unclear. These claims are grouped under the same heading as claims 7, 26, 45, 63, 70, and 77 on page 5 of the Office Action. While the Examiner takes Official Notice that the limitations of 7, 26, 45, 63, 70, and 77 are purportedly “well known and expected in the prior art,” the Examiner does not address the limitations of claims 8, 27, and 46.

None of the cited references discloses that a content address is generated based on only a first portion of the content and not on a second portion, and the Examiner appears not to have taken Official Notice that this is well known. As such, there is nothing in the record to support a rejection of claims 8, 27, and 46. Accordingly, the rejection of these claims should be reversed.

8. Claims Relating To Storing The Retention Period In The Portion Of a Content Unit Not Used To Generate The Content Address (i.e., Claims 9, 28, and 47)

The Office Action rejects claims 9, 28, and 47 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of these claims is directed to the retention period being stored in the portion of the unit of data that is not used to generate the content address. As discussed above, this is advantageous in that the retention period of the unit of data may be reduced without affecting the content address of the unit of data.

Again, the basis of the rejection of these claims is unclear. These claims are also grouped under the same heading as claims 7, 26, 45, 63, 70, and 77 on page 5 of the Office Action. While the Examiner takes Official Notice that the limitations of 7, 26, 45, 63, 70, and 77 are purportedly "well known and expected in the prior art," the Examiner does not address the limitations of claims 9, 28, and 47.

Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

None of the cited references discloses that the retention period for a unit of data is stored in the portion of the unit of data that is not used to generate the content address, and the Examiner appears not to have taken Official Notice that this is well known. As such, there is nothing in the record to support a rejection of claims 9, 28, and 47. Accordingly, the rejection of these claims should be reversed.

9. Claims Related To Determining Whether The Retention Period Is Permitted To
Be Reduced (i.e., Claims 10, 29, and 48)

The Office Action rejects claims 10, 29, and 48 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson.

Each of these claims relates to determining whether the retention period is permitted to be reduced and reducing the length of the retention period only when the retention period is permitted to be reduced. As discussed in Appellants' specification, at page 24, line 9 – page 25, line 2, it may be desirable to permit reduction of the retention periods for only certain types of units of data (e.g., some CDFs) to provide an additional level of security by prohibiting some types of units of data from being deleted prior to the expiration of their originally defined retention periods. Thus, this aspect of the invention provides control in allowing the reduction of retention periods.

The Office Action asserts that Bazoon discloses this limitation at ¶0040, but offers no further explanation. *See* Final Office Action, page 5-6. Appellant disagrees that the cited portion (or any other portion of Bazoon) discloses or suggests this limitation.

At ¶0040, Bazoon describes how a notification that a document will soon be removed from the knowledge repository may be sent to an interested party, such as an author of the document. Bazoon discloses that this may be accomplished through e-mail or instant message. Bazoon does not disclose that the storage periods for some documents are permitted to be reduced and that the storage periods for others are not, and certainly does not disclose that when a request to reduce a storage period for document is received that a determination is made as to whether the storage period may be reduced. Indeed, the portion of Bazoon cited by the Examiner at ¶0040 relates to extending a storage period, not reducing one.

Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

10. Claims Related To Classes Indicating Whether A Retention Period Is
Permitted To Be Reduced (i.e., Claims 11, 30, and 49)

The Office Action rejects claims 11, 30, and 49 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson, and further in view of Beresnevichiene (U.S. Pub. No. 2005/0076293).

Each of these claims is related to determining whether a retention period is permitted to be reduced by determining whether the at least one unit of data is within a class designated as capable of having the retention period reduced. As discussed above, permitting only certain classes of units of data to have their retention periods reduced provides control so that some classes of content can have irreducible retention periods.

The Office Action concedes that Bazoon does not disclose this limitation, but asserts that ¶0007 of Beresnevichiene does. While Appellant agrees that this limitation is not present in Bazoon and Parson, Appellant respectfully disagrees that Beresnevichiene cures this infirmity of Bazoon and Parson.

Beresnevichiene, at ¶0007, discloses that documents may be assigned retention periods, and that the length of the retention period may be assigned to a document according to its class. For example, Beresnevichiene discloses that database documents may be assigned a retention period of three years and encrypted documents may be assigned a retention period of ten years. Thus, the classes disclosed in Beresnevichiene relate to the length of the retention periods, but are entirely unrelated to whether the retention period is permitted to be reduced. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

11. Claims Related To Determining The Class Of A Unit Of Data (i.e., Claims 12, 31, and 50)

The Office Action rejects claims 12, 31, and 50 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson, and further in view of Beresnevichiene (U.S. Pub. No. 2005/0076293).

Each of these claims relates to determining whether the at least one unit of data is within a class designated as capable of having its retention period reduced by examining the previously-defined retention period. For example, as discussed in Appellant's specification at page 24, lines 9-22, units of data that have a fixed retention periods may be designated as not being permitted to have their retention period reduced, while units of data that have an indefinite retention period may be designated as being permitted to have their retention periods reduced.

The Office Action concedes that Bazoon and Parson do not disclose this limitation, but asserts that ¶0007 of Beresnevichiene does. While Appellant agrees that this limitation is not present in Bazoon or Parson, Appellant respectfully disagrees that Beresnevichiene cures this infirmity of Bazoon.

As discussed above, Beresnevichiene discloses that documents may be assigned retention periods, and that the length of the retention period may be assigned to a document according to its class. These classes relate solely to the lengths of the retention period, but have nothing to do with whether the document's retention period is capable of being reduced. Nowhere does Beresnevichiene disclose or suggest reducing a retention period at all, let alone that it may be determined whether a unit of data is within a class designated as capable of having the retention period reduced by examining the retention period. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

12. Claims Relating To Examining A Flag Associated With A Unit Of Data To Determine Whether The Unit Of Data Is In A Class Capable Of Having Its Retention Period Reduced (i.e., Claims 13, 32, and 51)

The Office Action rejects claims 13, 32, and 51 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson, Beresnevichiene (U.S. Pub. No. 2005/0076293) and Chang (U.S. Patent No. 6,690,774).

Each of these claims relates to determining whether the at least one unit of data is within a class designated as capable of having the retention period reduced by examining a flag associated with the unit of data. As discussed in Appellant's specification at page 25, lines 8-23, a flag may be associated with a unit of data to indicate whether the retention period of the unit of data may be reduced. The flag may be stored within the content of the unit of data itself or in a record external to the unit of data.

The Office Action concedes that neither Bazoon, Parson, nor Beresnevichiene discloses this limitation, but asserts Chang discloses this limitation at col. 10, lines 20-30. Appellant respectfully disagrees that Chang discloses this limitation.

The cited portion of Chang is entirely unrelated to examining a flag of unit of data to determine if the unit of data is within a class designated as capable of having its retention period reduced. Rather, Chang is directed to the use of a voicemail witness service, which people in dangerous situations may use to create a voicemail record of their encounter and to receive help, if needed (Chang, col. 1, lines 58-64). A person may activate the voicemail witness service by dialing a voicemail system and entering a predefined number to instruct the system to begin recording (col. 2, lines 2-5). Each recording is retained for a specified default period of time. At col. 10, lines 20-30, Chang discloses that the calling party may select an option to retain a voicemail witness record beyond the default period by entering a retention passcode. When this occurs, the system may set a flag in memory. When the default period expires, if the flag is set, then the system does not delete the record. Otherwise, when the default period expires, the system deletes the record from the voice mailbox.

Thus, the portion of Chang relied on by the Examiner does not disclose a flag that is used to determine whether the retention period of a unit of data may be reduced. Rather, the flag in Chang is used by the system to determine, **after the retention period for a voicemail witness record has expired**, whether the voicemail witness record is to be deleted from a voice mailbox. Nowhere does Chang disclose or suggest reducing retention periods for voicemail witness records or using a flag to determine whether such a retention period is permitted to be reduced. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

13. Claims Relating to Maintaining A History Of The Reduction Of A Retention
Period (i.e., Claims 18, 37, and 56)

The Office Action rejects claims 18, 37, and 56 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson and DeKimpe (6,542,895).

Each of these claims is related maintaining a record for the unit of data that stores a history of the reduction of its retention period.

The Office Action concedes that Bazoon and Parson do not disclose this limitation, but asserts that DeKimpe discloses it at col. 2, lines 45-60. Appellant respectfully disagrees that DeKimpe cures this infirmity of Bazoon and Parson.

The cited portion of DeKimpe discloses that changing the dimensions of multi-dimensional database may result in the deletion of a large number of rows of a database table. DeKimpe discloses that this may slow performance of the database management system because each of these changes needs to be logged in a transaction log file. That is, DeKimpe discloses that a database management system keeps a log of each database transaction made in a database management system. DeKimpe does not even mention retention periods and certainly does not disclose that a history of the reduction of a retention period of unit of data be stored. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

14. Claims Relating To Restoring A Retention Period (i.e., Claims 19, 38, 57, 64, and 71)

The Office Action rejects claims 19, 38, 57, 64, and 71 under 35 U.S.C. §103(a) as purportedly being obvious over Bazoon in view of Parson and DeKimpe (6,542,895).

Each of these claims is related to a request to restore a retention period to a previous length and/or restoring the retention period to that length. For example, as discussed in Appellant's specification at page 33, lines 5-25, the ability to restore a retention period may be advantageous in situations where the retention period for a unit of data was inadvertently reduced.

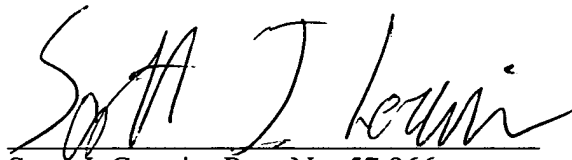
The Office Action asserts that Bazoon discloses this limitation at ¶0022, by virtue of "keeping the storage period the same as it was before." Final Office Action, page 9.

While ¶0022 of Bazoon discloses that a previously-established storage period may be modified, but does not say anything about restoring a modified storage period to its previous length. Accordingly, these claims further distinguish over the prior art for this additional reason and their rejection should be reversed.

VIII. CONCLUSION

For the foregoing reasons, the rejection of claims 1-80 is improper and should be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Scott J. Gerwin", is written over a horizontal line.

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APPENDIX A – CLAIMS AS PENDING

1. (Previously Presented) A method of processing data in a computer system comprising at least one host and at least one content addressable storage (CAS) system, wherein the at least one host identifies units of data on the at least one CAS system using content addresses each generated based, at least in part, on at least a portion of the content of the corresponding unit of data, the at least one CAS system storing at least one unit of data having a previously-defined retention period, the method comprising acts of:
 - (A) receiving, at the at least one CAS system, a request from the at least one host to reduce a length of the retention period for the at least one unit of data, the retention period specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system; and
 - (B) reducing the length of the retention period for the at least one unit of data in response to the request.
2. (Original) The method of claim 1, wherein the request comprises an event command indicating the occurrence of an event.
3. (Previously Presented) The method of claim 2, wherein the event command does not specify the amount by which the retention period is to be reduced, and wherein the act (B) further comprises an act of determining the amount by which the retention period is to be reduced by referring to information stored within or accessible to the CAS system.
4. (Original) The method of claim 1, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced.
5. (Previously presented) The method of claim 1, wherein the at least one CAS system stores the previously-defined retention period within the unit of data, and wherein the act (B) further comprises replacing the unit of data with a new unit of data having the reduced retention period.

6. (Previously presented) The method of claim 1, wherein the at least one CAS system stores the previously-defined retention period in a record outside of the unit of data, and wherein the act (B) further comprises modifying the record to reduce the previously-defined retention period.
7. (Previously presented) The method of claim 1, wherein the at least one CAS system is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of data.
8. (Original) The method of claim 7, wherein the content address the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data.
9. (Previously presented) The method of claim 8, wherein the at least one CAS system stores the previously-defined retention period in the second portion of the content of the unit of data on which generation of the content address is not based, and wherein the act (B) further comprises an act of reducing the previously-defined retention period specified in the second portion of the content of the unit of data.
10. (Original) The method of claim 1, wherein the act (B) further comprises acts of:
(B1) determining whether the previously-defined retention period for the unit of data is permitted to be reduced; and
(B2) reducing the length of the previously-defined retention period only when the previously-defined retention period for the unit of data is permitted to be reduced.
11. (Original) The method of claim 10, wherein the act (B1) further comprises determining whether at least one of the unit of data and the previously-defined retention period is within a class designated as capable of having the retention period reduced.

12. (Original) The method of claim 11, wherein the act (B1) further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining the previously-defined retention period.

13. (Original) The method of claim 11, wherein the act (B1) further comprises determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data.

14. (Original) The method of claim 1, wherein the act (B) further comprises an act of reducing the length of the previously-defined retention period to zero.

15. (Original) The method of claim 1, wherein the act (B) further comprises an act of deleting the unit of data.

16. (Original) The method of claim 15, further comprising an act of:
creating an audit log entry that records information about the deletion of the unit of data.

17. (Original) The method of claim 15, further comprising an act of creating a new unit of data to replace the deleted unit of data, the new unit of data having a retention period shorter than the previously-defined retention period.

18. (Previously presented) The method of claim 1, further comprising an act of maintaining on the at least one CAS system at least one record for the unit of data, the at least one record storing a history of the reduction of the previously defined retention period.

19. (Previously presented) The method of claim 18, further comprising acts of:

receiving, at the at least one CAS system, a request from the at least one host to restore the retention period to the length of the previously-defined retention period for the at least one unit of data; and

restoring the retention period to the length of the previously-defined retention period in response to the request.

20. (Previously Presented) At least one computer readable storage medium encoded with instructions that, when executed on a computer system, perform a method of processing data, wherein the computer system comprises at least one host and at least one content addressable storage (CAS) system, wherein the at least one host identifies units of data on the at least one CAS system using content addresses each generated based, at least in part, on at least a portion of the content of the corresponding unit of data, the at least one CAS system storing at least one unit of data having a previously-defined retention period, the method comprising acts of:

(A) receiving, at the at least one CAS system, a request from the at least one host to reduce a length of the retention period for the at least one unit of data, the retention period specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system; and

(B) reducing the length of the retention period for the at least one unit of data in response to the request.

21. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the request comprises an event command indicating the occurrence of an event.

22. (Previously Presented) The at least one computer readable storage medium of claim 21, wherein the event command does not specify the amount by which the retention period is to be reduced, and wherein the act (B) further comprises an act of determining the amount by which the retention period is to be reduced by referring to information stored within or accessible to the at least one CAS system.

23. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced.

24. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the at least one CAS system stores the previously-defined retention period within the unit of data, and wherein the act (B) further comprises replacing the unit of data with a new unit of data having the reduced retention period.

25. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the at least one CAS system stores the previously-defined retention period in a record outside of the unit of data, and wherein the act (B) further comprises modifying the record to reduce the previously-defined retention period.

26. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the at least one CAS system is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of data.

27. (Previously Presented) The at least one computer readable storage medium of claim 26, wherein the content address the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data.

28. (Previously Presented) The at least one computer readable storage medium of claim 27, wherein the at least one CAS system stores the previously-defined retention period in the second portion of the content of the unit of data on which generation of the content address is not based, and wherein the act (B) further comprises an act of reducing the previously-defined retention period specified in the second portion of the content of the unit of data.

29. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the act (B) further comprises acts of:

(B1) determining whether the previously-defined retention period for the unit of data is permitted to be reduced; and

(B2) reducing the length of the previously-defined retention period only when the previously-defined retention period for the unit of data is permitted to be reduced.

30. (Previously Presented) The at least one computer readable storage medium of claim 29, wherein the act (B1) further comprises determining whether at least one of the unit of data and the previously-defined retention period is within a class designated as capable of having the retention period reduced.

31. (Previously Presented) The at least one computer readable storage medium of claim 30, wherein the act (B1) further comprises an act of determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining the previously-defined retention period.

32. (Previously Presented) The at least one computer readable storage medium of claim 30, wherein the act (B1) further comprises an act of determining whether at least one of the unit of data and the previously-defined retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data.

33. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the act (B) further comprises an act of:

reducing the length of the previously-defined retention period to zero.

34. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the act (B) further comprises an act of deleting the unit of data.

35. (Previously Presented) The at least one computer readable storage medium of claim 34, wherein the method further comprises an act of creating an audit log entry that records information about the deletion of the unit of data.

36. (Previously Presented) The at least one computer readable storage medium of claim 34, wherein the method further comprises an act of creating a new unit of data to replace the deleted unit of data, the new unit of data having a retention period shorter than the previously-defined retention period.

37. (Previously Presented) The at least one computer readable storage medium of claim 20, wherein the method further comprises an act of maintaining on the at least one CAS system at least one record for the unit of data, the at least one record storing a history of the reduction of the previously defined retention period.

38. (Previously Presented) The at least one computer readable storage medium of claim 37, wherein the method further comprises acts of:

receiving, at the at least one CAS system, a request from the at least one host to restore the retention period to the length of the previously-defined retention period for the at least one unit of data; and

restoring the retention period to the length of the previously-defined retention period in response to the request.

39. (Previously presented) A storage system for use in a computer system including the storage system and at least one host, wherein the storage system is a content addressable storage (CAS) system, and wherein the at least one host identifies units of data on the at least one CAS system using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data, the storage system comprising:

at least one storage device to store at least one unit of data received from the at least one host, the unit of data having an associated retention period during which the at least one unit of data cannot be deleted from the storage system; and

at least one controller that is adapted to:
receive a request from the at least one host to reduce a length of the retention period for the at least one unit of data; and
reduce the length of the retention period for the at least one unit of data in response to the request.

40. (Original) The storage system of claim 39, wherein the request comprises an event command indicating the occurrence of an event.

41. (Previously Presented) The storage system of claim 40, wherein the event command does not specify the amount by which the retention period is to be reduced, and wherein the at least one controller is adapted to determine the amount by which the retention period is to be reduced by referring to information stored within or accessible to the storage system.

42. (Original) The storage system of claim 39, wherein the request specifies that the retention period be reduced and the manner in which the length of the retention period is to be reduced.

43. (Original) The storage system of claim 39, wherein the storage system stores the retention period within the unit of data, and wherein the at least one controller is adapted to replace the unit of data with a new unit of data having the reduced retention period.

44. (Original) The storage system of claim 39, wherein the storage system stores the retention period in a record outside of the unit of data, and wherein the at least one controller is adapted to modify the record to reduce the previously-defined retention period.

45. (Previously presented) The storage system of claim 39, wherein the at least one storage system is responsive to access requests from the at least one host that reference a content address for the unit of data that is generated based on the content of the unit of data.

46. (Original) The storage system of claim 45, wherein the content address for the unit of data is generated based on only a first portion of the content of the unit of data and not on a second portion of the content of the unit of data.

47. (Original) The storage system of claim 46, wherein the storage system stores the retention period in the second portion of the content of the unit of data on which generation of the content address is not based, and wherein the at least one controller is adapted to reduce the retention period specified in the second portion of the content of the unit of data.

48. (Original) The storage system of claim 39, wherein the at least one controller is adapted to: determine whether the retention period for the unit of data is permitted to be reduced; and reduce the retention period only when the retention period for the unit of data is permitted to be reduced.

49. (Original) The storage system of claim 48, wherein the at least one controller is adapted to determine whether at least one of the unit of data and the retention period is within a class designated as capable of having the retention period reduced.

50. (Original) The storage system of claim 49, wherein the at least one controller is adapted to determine whether the at least one unit of data and the retention period is within the class designated as capable of having the retention period reduced by examining the retention period.

51. (Original) The storage system of claim 49, wherein the at least one controller is adapted to determine whether the at least one unit of data and the retention period is within the class designated as capable of having the retention period reduced by examining a flag associated with the unit of data.

52. (Original) The storage system of claim 39, wherein the request specifies to reduce the length of the retention period, and wherein the at least one controller is adapted to reduce the length of the retention period to zero in response to the request.

53. (Original) The storage system of claim 39, wherein the request specifies to delete the unit of data, and wherein the at least one controller deletes the unit of data in response to the request.

54. (Original) The storage system of claim 53, wherein the at least one controller is adapted to create an audit log entry that records information about the deletion of the unit of data.

55. (Original) The storage system of claim 53, wherein the at least one controller is adapted to create a new unit of data to replace the deleted unit of data, the new unit of data having a second retention period shorter than the retention period.

56. (Original) The storage system of claim 39, wherein the at least one controller is adapted to maintain on the storage system at least one record for the unit of data, the at least one record storing a history of the reduction of the previously defined retention period.

57. (Original) The storage system of claim 56, wherein the at least one controller is adapted to:

receive, at the at least one storage system, a request from the at least one host to restore the retention period to a previously-defined length for the at least one unit of data; and
restore the retention period to the previously-defined length in response to the request.

58. (Previously Presented) A method of processing data in a computer system comprising at least one host and at least one content addressable storage (CAS) system, wherein the at least one host identifies units of data on the at least one CAS system using content addresses generated based, at least in part, on at least a portion of the content of the unit of data, the at least one CAS system storing at least one unit of data having a previously-defined retention period, the method comprising acts of:

(A) sending, from the at least one host, a request to the at least one CAS system to reduce a length of the retention period for that at least one unit of data, wherein the retention

period specifies a time during which the at least one unit of data cannot be deleted from the at least one CAS system; and

(B) receiving, from the at least one CAS system, a response indicating that the request was granted.

59. (Original) The method of claim 58, further comprising an act of sending the request in response to the occurrence of an event.

60. (Original) The method of claim 58, wherein the request comprises an event command indicating the occurrence of an event.

61. (Original) The method of claim 60, wherein the event command does not specify the manner in which the retention period is to be reduced.

62. (Original) The method of claim 58, wherein the request specifies that the retention period is to be reduced and the manner in which the length of the retention period is to be reduced.

63. (Previously presented) The method of claim 58, wherein the at least one host accesses the unit of data stored on the at least one CAS system using a content address generated based on the content of the unit of data.

64. (Previously presented) The method of claim 58, further comprising an act of:
sending, from the at least one host, a second request to the at least one CAS system to restore the retention period to the length of the previously-defined retention period for the at least one unit of data.

65. (Previously Presented) At least one computer readable storage medium encoded with instructions that, when executed on a computer system, perform a method of processing data, wherein the computer system comprises at least one host and at least one content addressable

storage (CAS) system, wherein the at least one host identifies units of data on the at least one CAS system using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data, the at least one CAS system storing at least one unit of data having a previously-defined retention period, the method comprising acts of:

(A) sending, from the at least one host, a request to the at least one CAS system to reduce a length of the retention period for that at least one unit of data, the retention period specifying a time during which the at least one unit of data cannot be deleted from the at least one CAS system; and

(B) receiving, from the at least one CAS system, a response indicating that the request was granted.

66. (Previously Presented) The at least one computer readable storage medium of claim 65, wherein the method further comprises an act of sending the request in response to the occurrence of an event.

67. (Previously Presented) The at least one computer readable storage medium of claim 65, wherein the request comprises an event command indicating the occurrence of an event.

68. (Previously Presented) The at least one computer readable storage medium of claim 67, wherein the event command does not specify the manner in which the retention period is to be reduced.

69. (Previously Presented) The at least one computer readable storage medium of claim 65, wherein the request specifies that the retention period is to be reduced and the manner in which the length of the retention period is to be reduced.

70. (Previously Presented) The at least one computer readable storage medium of claim 65, wherein the at least one host accesses the unit of data stored on the at least one CAS system using a content address generated based on the content of the unit of data.

71. (Previously Presented) The at least one computer readable storage medium of claim 65, wherein the method further comprises an act of:

 sending, from the at least one host, a second request to the at least one CAS system to restore the retention period to the length of the previously-defined retention period for the at least one unit of data.

72. (Previously Presented) A host computer for use in a computer system that includes the host computer and at least one CAS system, wherein the at least one host identifies units of data on the at least one CAS system using content addresses generated based, at least in part, on at least a portion of the content of the corresponding unit of data, the at least one CAS system storing, for the at least one host, at least one unit of data having a previously-defined retention period, the host computer comprising:

 at least one storage device; and

 at least one controller, coupled to the at least one storage device, that is adapted to send a request to the at least one CAS system to reduce a length of the retention period for that at least one unit of data and receive, from the at least one CAS system, a response indicating that the request was granted, wherein the retention period specifies a time during which the at least one unit of data cannot be deleted from the at least one CAS system.

73. (Original) The host computer of claim 72, wherein the at least one controller is adapted to send the request in response to the occurrence of an event.

74. (Original) The host computer of claim 72, wherein the request comprises an event command indicating the occurrence of an event.

75. (Original) The host computer of claim 74, wherein the event command does not specify the manner in which the retention period is to be reduced.

76. (Original) The host computer of claim 72, wherein the request specifies that the retention period is to be reduced and the manner in which the length of the retention period is to be reduced.

77. (Previously presented) The host computer of claim 72, wherein the host computer is adapted to access the unit of data stored on the at least one CAS system using a content address generated based on the content of the unit of data.

78. (Previously presented) The host computer of claim 72, wherein the at least one controller is adapted to send a second request to the at least one CAS system to restore the retention period to the length of the previously-defined retention period for the at least one unit of data.

79. (Previously presented) The host computer of claim 72, in combination with the at least one CAS system.

80. (Previously presented) The host computer of claim 72, wherein the at least one controller comprises:

means for sending a request to the at least one CAS system to reduce a length of the retention period for that at least one unit of data.

APPENDIX B – EVIDENCE

None.

APPENDIX C – RELATED PROCEEDINGS

None.